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EFFECT OF DRAINAGE WATER QUALITY ON SOIL AND PLANT

By

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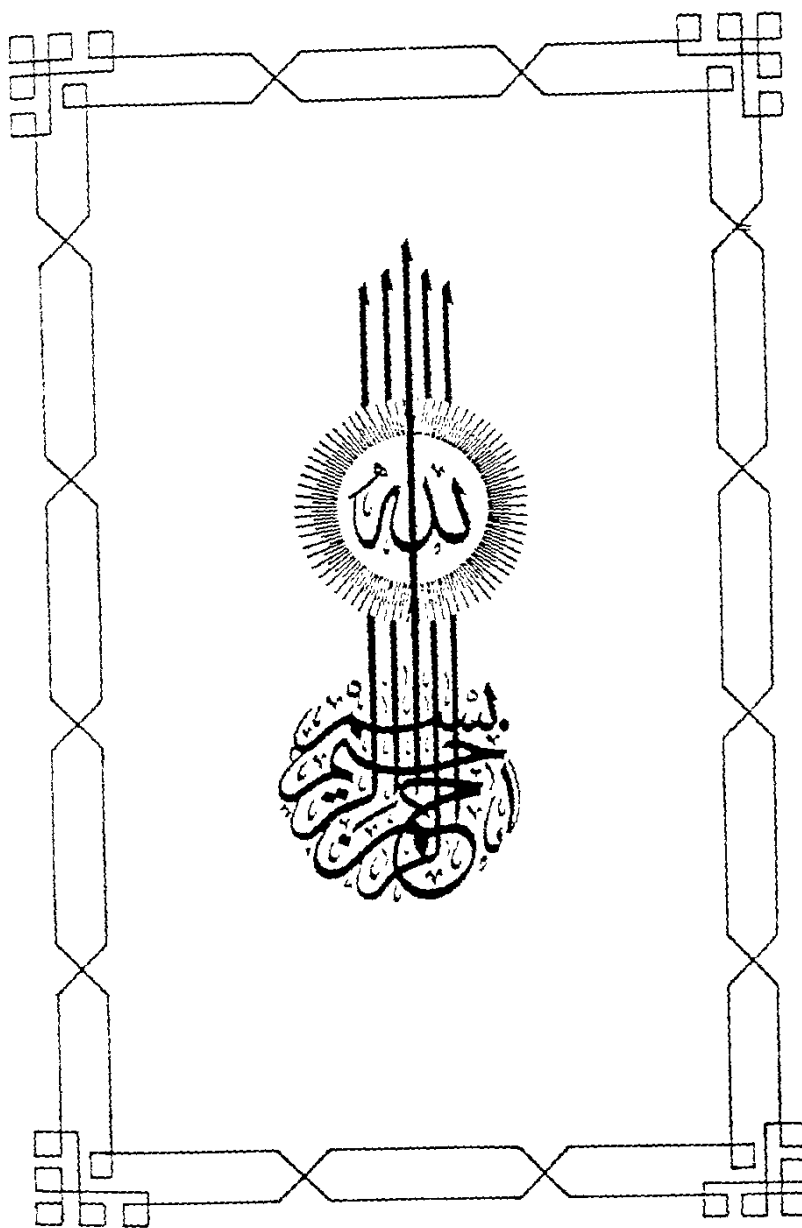
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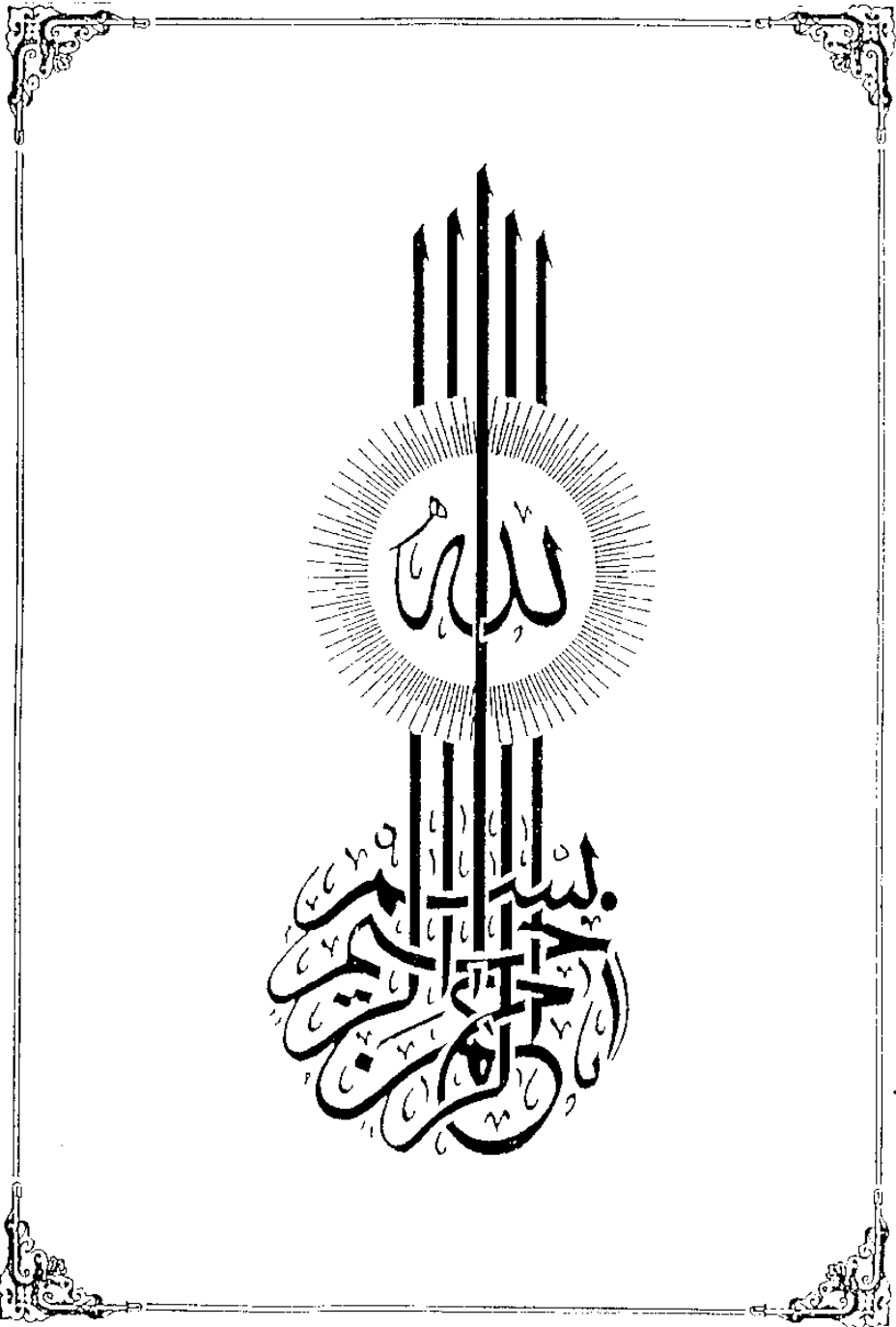
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ABSTRACT

The main objectives of the present work were to study the influence of drainage water quality with respecting to its boron content on behaviours of different varieties of cotton and tomato plants and some physical and chemical characteristics of soils. Increasing salinity level in irrigation water reduced and delayed the germination of Dandara , Giza 70 , Giza 69 and Giza 77 varieties for cotton and Edkawy , T5 and AOE varieties for tomato plants . Data reveal that the most salt and boron tolerant cotton and tomato varieties were Dandara and Edkawy respectively . Growth of both tested plants was inhibited at all salinity levels . Increasing boron level up to 5 ppm in irrigation water had injurious effect on growth of the tested plants . Increasing salinity levels in irrigation water resulted

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in an increase in Na and decrease N , P , K , Ca and Mg contents in both shoots and roots of plants . Na , Ca and Mg contents in cotton plant were not affected by boron concentration in irrigation water , In contrast , Na content increased and Ca and Mg decreased in both shoots and roots of tomato plant .N, P and K content in tested plant markedly depressed at higher boron levels in irrigation water . Increasing salinity level in the drainage water used for irrigation seems to increase permeability, structure factor and soil salinity level of the investigated soil In contrast , permeability , structure factor decreased and exchangeable sodium percentage of the tested soils increased with increasing sodium adsorption ratio in irrigation water .

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